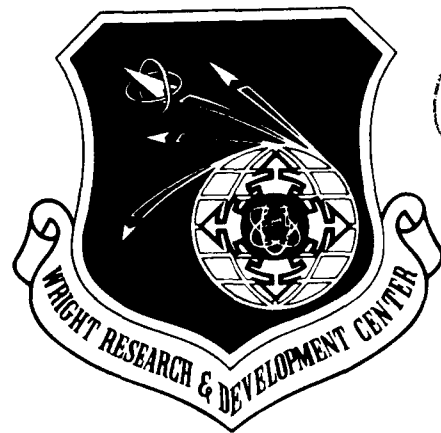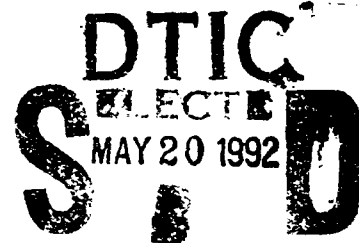WRDC-TR-90-8007
Volume V
Part 44

AD-A250 476

INTEGRATED INFORMATION SUPPORT SYSTEM (IISS)
Volume V - Common Data Model Subsystem
Part 44 - CDM Compare Utility Unit Test Plan

M. Apicella, S. Singh

Control Data Corporation
Integration Technology Services
2970 Presidential Drive
Fairborn, OH 45324-6209

DTIC
SELECTE
MAY 20 1992
S D

September 1990

92-13395

Final Report for Period 1 April 1987 - 31 December 1990

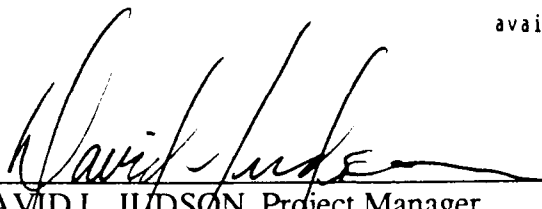Approved for Public Release; Distribution is Unlimited

MANUFACTURING TECHNOLOGY DIRECTORATE
WRIGHT RESEARCH AND DEVELOPMENT CENTER
AIR FORCE SYSTEMS COMMAND
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433-6533

NOTICE

When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever, regardless whether or not the government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data. It should not, therefore, be construed or implied by any person, persons, or organization that the Government is licensing or conveying any rights or permission to manufacture, use, or market any patented invention that may in any way be related thereto.
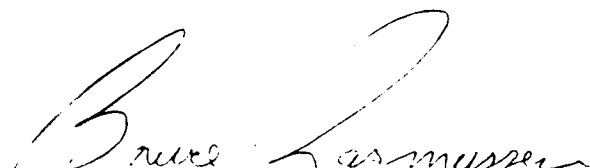
This technical report has been reviewed and is approved for publication.

This report is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations

DAVID L. JUDSON, Project Manager
WRDC/MTI
Wright-Patterson AFB, OH 45433-6533

DATE   25 July 91

FOR THE COMMANDER:

BRUCE A. RASMUSSEN, Chief
WRDC/MTI
Wright-Patterson AFB, OH 45433-6533

DATE   25 July 91

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified		1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY		3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for Public Release; Distribution is Unlimited.		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE				
4. PERFORMING ORGANIZATION REPORT NUMBER(S) UTP620341430		5. MONITORING ORGANIZATION REPORT NUMBER(S) WRDC-TR-90-8007 Vol. V, Part 44		
6a. NAME OF PERFORMING ORGANIZATION Control Data Corporation; Integration Technology Services	6b. OFFICE SYMBOL (if applicable)	7a. NAME OF MONITORING ORGANIZATION WRDC/MTI		
6c. ADDRESS (City, State, and ZIP Code) 2970 Presidential Drive Fairborn, OH 45324-6209		7b. ADDRESS (City, State, and ZIP Code) WPAFB, OH 45433-6533		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION Wright Research and Development Center, Air Force Systems Command, USAF	8b. OFFICE SYMBOL (if applicable) WRDC/MTI	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUM. F33600-87-C-0464		

8c. ADDRESS (City, State, and ZIP Code) Wright-Patterson AFB, Ohio 45433	10. SOURCE OF FUNDING NOS.			
	PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT NO.
11. TITLE (Include Security Classification) See block 19	78011F	595600	F95600	20950607

12. PERSONAL AUTHOR(S)
Control Data Corporation: Apicella, M. L., Singh, S.

13a. TYPE OF REPORT Final Report	13b. TIME COVERED 4/1/87~12/31/90	14. DATE OF REPORT (Yr.,Mo.,Day) 1990 September 30	15. PAGE COUNT 11

16. SUPPLEMENTARY NOTATION

WRDC/MTI Project Priority 6203

17.	COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify block no.)
FIELD	GROUP	SUB GR.	
1308	0905		

19. ABSTRACT   (Continue on reverse if necessary and identify block number)

This document establishes the performance, design, test, and qualification requirements for the Common Data Model (CDM) Compare Utility. This utility is used to compare two versions of a CDM and report differences within the internal, conceptual, and external schemas, as well as the schema mappings.

BLOCK 11:

INTEGRATED INFORMATION SUPPORT SYSTEM
Vol V - Common Data Model Subsystem

Part 44 - CDM Compare Utility Unit Test Plan

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION	
UNCLASSIFIED/UNLIMITED x SAME AS RPT. DTIC USERS	Unclassified	
22a. NAME OF RESPONSIBLE INDIVIDUAL David L. Judson	22b. TELEPHONE NO. (Include Area Code) (513) 255-7371	22c. OFFICE SYMBOL WRDC/MTI

DD FORM 1473, 83 APR   EDITION OF 1 JAN 73 IS OBSOLETE

FOREWORD

This technical report covers work performed under Air Force
Contract F33600-87-C-0464, DAPro Project. This contract is
sponsored by the Manufacturing Technology Directorate, Air Force
Systems Command, Wright-Patterson Air Force Base, Ohio. It was
administered under the technical direction of Mr. Bruce A.
Rasmussen, Branch Chief, Integration Technology Division,
Manufacturing Technology Directorate, through Mr. David L. Judson,
Project Manager. The Prime Contractor was Integration Technology
Services, Software Programs Division, of the Control Data
Corporation, Dayton, Ohio, under the direction of Mr. W. A.
Osborne. The DAPro Project Manager for Control Data Corporation
was Mr. Jimmy P. Maxwell.

The DAPro project was created to continue the development, test,
and demonstration of the Integrated Information Support System
(IISS). The IISS technology work comprises enhancements to IISS
software and the establishment and operation of IISS test bed
hardware and communications for developers and users.

The following list names the Control Data Corporation
subcontractors and their contributing activities:

SUBCONTRACTOR   ROLE

Control Data Corporation   Responsible for the overall Common
                                 Data Model design development and
                                 implementation, IISS integration and
                                 test, and technology transfer of IISS.

D. Appleton Company   Responsible for providing software
                                 information services for the Common
                                 Data Model and IDEF1X integration
                                 methodology.

ONTEK   Responsible for defining and testing a
                                 representative integrated system base
                                 in Artificial Intelligence techniques
                                 to establish fitness for use.

Simpact Corporation   Responsible for Communication
                                 development.

Accession For

NTIS GRA&I ☑
DTIC TAB ☐
Unannounced ☐
Justification

By
Distribution/
Availability Codes
Dist | Avail and/or Special
A-1

iii

Structural Dynamics   Responsible for User Interfaces,
Research Corporation   Virtual Terminal Interface,and Network
                               Transaction Manager design,
                               development, implementation, and
                               support.

Arizona State University   Responsible for test bed operations
                               and support.

Table of Contents

IISS UNIT TEST PLAN

Subsystem: CDM   Release 2.3

Test Name and Number: CDM Compare Utility Tests

Objective:

This test case will test the three programs which make up the CDM Compare Utility. The three programs are: Extract, Compare and Report. The test will be done in two phases.
Phase 1 will execute the CDM Compare Extract Program. The output of this phase will be a file(s) containing the data extracted from a CDM. Phase 2 will execute the Compare and Report programs. The output of this phase will be a file containing a report of the differences in the supplied test data files. Phases 1 and 2 of this test are designed to be independent of each other for testing purposes. Phase 2 of this test may be done prior to Phase 1 if the tester is so inclined.

Resource Requirements

Number of Terminals: 2

Software requirements:

ORACLE, CDM database, NTM and User Interface software. A new table should be added to the ORACLE CDM database. The table name is COMPARE_RESULTS.

Estimated Time for Test:

Two days.
Special Resource
 Considerations:

The Phase 1 test includes six data files to be used during test validation:

cdmiskm.scp - internal schema
cdmcskm.scp - conceptual schema
cdmeskm.scp - external schema
cdmcism.scp - conceptual-internal schema mapping
cdmcesm.scp - conceptual-external schema mapping
cdmcmap.scp - complex mappings

The Phase 2 test is supplied with 3 data files.
These files can be found in IISS Configuration Management.
The files are:

cdm1tst.scp - CDM test data used as input to the Compare program.
cdm2tst.scp - CDM test data used as input to the Compare program.
cdmrprt.dat - file used to validate the Phase 2 test results.

This test also requires the manual creation of the output file cdmrtest.dat. This will be explained in the instructions that follow.

Test Definitions

Method of Performing Tests:

In order to run the unit test plan, one must first insure the NTM is active. It is important that the logical, ORACLE$SID, points to the copy of ORACLE containing the release 2.3 version of the CDM database.

After logging on to an IISS account insure the following logicals are assigned properly:

IISSFLIB - directory containing IISS form
            definitions
IISSULIB - directory containing CDM Compare
            form definitions
IISSMLIB - directory containing IISS error
            messages

Phase 1 Test Inputs:

STEP 1: Set directory to the directory containing
         the NTM environment.

         $ SET DEF <directory name>

STEP 2: Start the User Interface system. If the
         User Interface system has been installed at
         your site with a different device driver,
         then this step should be amended
         appropriately.

         $ VT100

STEP 3: Fill in the fields on the IISS Logon Screen.

         USERNAME: CDM
         PASSWORD: CDM
         ROLE: CDM

             press <ENTER>

STEP 4: Enter the name of the CDM Compare Extract
         program on the IISS Function Screen.

         FUNCTION: CDMXTRCT

             press <ENTER>

STEP 5: Fill in the fields of the Extract input
         screen.

CDM VERSION IDENTIFIER: CDM1DATA
OUTPUT DATA FILE NAME: <output file name>
                       CMPEXTRACT.OUT - Internal
Place an "X" in the box to the left of
INTERNAL SCHEMA, for this test.

press <ENTER>

STEP 6: When the program finishes, the IISS function
        screen will appear. Return to the operating
        system.

press <QUIT>

NOTE: Due to the amount of time required to extract
        all the data from the CDM, it is strongly
        recommended that each schema/mapping be
        extracted in a separate execution of this test.
        To obtain the data for the other
        schema/mappings use different file names in the
        output data file name field and place the "X"
        in the appropriate box for each execution.

Phase 1 Expected Test Results:

The results of this test will be an output file with
the same name as was entered in step 5 above. Using
the DIFFILE command under IISS Configuration
Management, compare the created file with the
appropriate validation file to check for differences.
Review the special resource considerations for Phase 1
testing to determine the correct validation file to
use.

NOTE: It should be understood that the data extracted
        from the CDM during this test may differ from
        the data in the supplied results files since
        the CDM may have been modified over time.

Define Successful Completion
Criteria for Phase 1 Test:

Successful completion for this test will be normal
termination of the program and a reasonably equal
comparison of the output data files and the supplied
results files.

Phase 2 Test Inputs:

STEP 1: Set directory to the directory containing
        the NTM environment.

        $ SET DEF <directory name>

STEP 2: Create the file cdmrtest.dat.

        $ CREATE CDMRTEST.DAT
         ^Z   (cntl/Z)

STEP 3: Start the User Interface system. If the User Interface system has been installed at your site with a different device driver, then this step should be amended appropriately.

$ VT100

STEP 4: Fill in the fields on the IISS Logon Screen.

USERNAME: CDM
PASSWORD: CDM
ROLE: CDM

   press <ENTER>

STEP 5: Enter the name of the Compare program on the IISS Function Screen.

FUNCTION: CDMCMPAR

   press <ENTER>

STEP 6: Fill in the fields of the Compare input screen.

EXTRACT FILE 1: CDM1TST.SCP
EXTRACT FILE 2: CDM2TST.SCP

   press <ENTER>

When the Compare program finishes, the IISS Function Screen will appear.

STEP 7: Run the CDM Compare Report program by entering the name of the program in the IISS Function Screen.

FUNCTION: CDMREPRT
DRIVER: SDPRINTERZ
DEVICE: CDMRTEST.DAT

   press <ENTER>

STEP 8: There will be a message at the bottom of the IISS Function Screen when the program finishes. Return to the operating system.

   press <QUIT>

STEP 9: Compare the contents of the supplied results file, cdmreprt.dat, with the contents of the cdmrtest.dat file using DIFFILE.COM located in IISS Configuration Management.

$ DIFF CDMRPRT.DAT CDMRTEST.DAT

1-4

Phase 2 Expected Test Results:

    The results of this test will be the report being sent
to the file cdmrtest.dat.

Define Successful Completion
Criteria for Phase 2 Test:

    Except for the dates and times, the results of the
comparison of the two files in step 8 should
identical.

IISS UNIT TEST REPORT

CDM Compare Utility - Extract Program Test

Test Completed By:

RELEASE NO.:   Date:

TEST EVALUATION: ____ PASSED   ____ FAILED

Test Description:

Input:

Expected Results:

Actual Results:

IISS UNIT TEST REPORT

CDM Compare Utility - Compare and Report Program Test

Test Completed By:

RELEASE NO.:   Date:

TEST EVALUATION: ____ PASSED   ____ FAILED

Test Description:

Input:

Expected Results:

Actual Results:

☆U.S. GOVERNMENT PRINTING OFFICE : 1992 - 648-127/62325